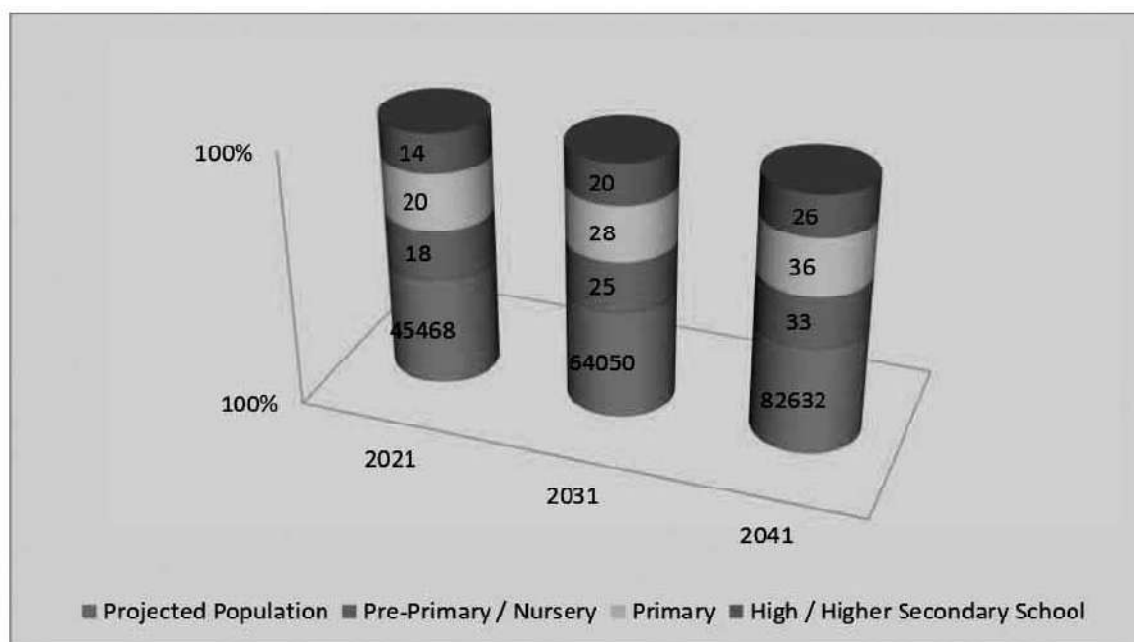


FIGURE: -32
School required in CMPA upto 2041



Source: Estimated by Town & Country Planning, Assam, Dibrugarh

The shortage of schools in the plan area, to some extent has been fulfilled by the private institutions at present and it is also hope that in the future, private institutions will play an important role to mitigate the shortage of primary schools as well as High and Higher Secondary schools.

6.2.2 Health Care facilities

Hospitals and healthcare services in the town of Chabua and its adjacent area is satisfactory to some extent due to the existence of several tea garden hospitals. One of the premiere health institutions in Chabua is Tata Referral Hospital & Research Centre situated in Chabua Tea Estate.



It is a 75-bedded, secondary care hospital, was conceptualized by Tata Tea Ltd. in 1989 and was set up by Tata Tea in 1994. It has been offering treatment at minimal cost to the general public. The hospital works on a non-profit basis. Through its sustained and ethical medical practices, it has earned a good reputation not only locally but even in the neighbouring states of Nagaland and Arunachal Pradesh from where patients come seeking better medical care. It is the only healthcare centre in the region with SA8000 certification. Since 2007, the hospital has treated over 3,00,000 patients of which over 2,50,000 have been non-employee patients. The mission of the hospital is to provide the best secondary medical care at affordable cost in the North East.



Panitola Block Primary Health Centre



Amalgamated Plantation Hospital, Chabua T.E.



Sealkotee Hospital



Mahatma Gandhi Model Hospital



Model Rural Health Research Unit (MRHRU)

Most of the health-care facilities except TATA referral hospital have limited treatment facilities needed to support the people of the town and its adjoining village areas. Serious category patients generally rush to Assam Medical College, Dibrugarh situated at a distance of 30 Km from Chabua for better treatment.

TABLE No-36
List of Health facilities in Chabua Master Plan area

Sl.No.	Name of Health facilities
1	Tata Referral Hospital & Research Centre
2	Mahatma Gandhi Model Hospital, Chabua
3	Model Rural Health Research Unit (MRHRU)
4	Amalgamated Plantation Hospital
5	Chabua T.E. Health Sub-Centre
6	Chabua Urban SC Health Sub-Centre
7	WHO Health Care
8	Panitola Block Primary Health Centre, Kanjikhwa
9	Sealkotee T.E. Hospital, Swananda Tea Pvt. Ltd.
10	Chetia gaon SC Health Sub-Centre
11	Dinjoy Satra Chapori SC Health Sub-Centre
12	Koilabari SC Health Sub-Centre
13	Kopohuwa SC Health Sub-Centre
14	Bishmila Sub-Centre

Source: -Data collected by T&CP, Dibrugarh

URDPFI Guideline for Health Care Facilities

In the health care facilities, the size of a hospital depends upon the hospital bed requirement, which in turns is a function of the size of the population it serves. As per URDPFI guideline the calculation of number of beds is based on: -

- A) Annual rate of admission as 1 per 50 population
- B) Average length of stay in a hospital as 5 days.

Since the projected population for Chabua master plan up to the Year 2041 is 82632 as such, the number of beds required for the said population is: -

- i) No. of beds days per year = $(82632 \times 1/50) \times 5 = 8263$
- ii) No. of beds required with = $8263 / 365 = 23$
100% Occupancy

The classification of healthcare facilities as URDPFI guideline is given in the following table: -

TABLENO: -37
HEALTHCARE FACILITIES

Sl. No	Category	No. of Beds	Population served per	Area Requirement
1	Dispensary	-	15000	0.08 to 0.12 Ha
2	Nursing home, Child Welfare & Maternity	25 to 30 beds	45000 to 1.00 Lakhs	0.20 to 0.30 Ha
3	Polyclinic	Some observation bed	1.00 Lakhs	0.20 to 0.30 Ha
4	Intermediate Hospital	200 Initially the provision may be for 100 beds including maternity beds	1.00 Lakhs	Total Area = 3.7 Ha. i) Area for hospital = 2.70 Ha. ii) Area for Residential Accommodation = 1.00 Ha.
5	Family Welfare Centre	As per requirement	50,000	Total Area = 500 Sq.m to 800 Sq.m
6	Diagnostic Centre	As per requirement	50,000	Total Area = 500 Sq.m to 800 Sq.m
7	Rehabilitation Centre	-	-	As per requirement

This plan suggests to take appropriate measures by the health department for the provision of 6 nos. of dispensaries at various location within the master plan area covering an area of 0.08 – 0.12 hectare per dispensary serving at least 15,000 persons. This plan also asked the health department to develop the existing health care centres This plan also suggest to set-up a family welfare center to serve at least 50000 persons by the health department and also a Rehabilitation center by the Govt. or by any NGO for the upliftment of deprived class of the community.

6.2.3 Parks and Recreation Spaces

In Chabua there is 1 outdoor stadium and 6 playgrounds which provides the recreational facilities to the people of the master plan area. DDR College has their own field for recreational activities. Tea Estates have their own play-fields and auditoriums for outdoor and indoor recreational facilities.

In Chabua Master Plan Area the existing land use for recreational purposes is only 65 hectares i.e. 1.08 % of the master plan area or 4.99 % of the total developed area. In this plan the proposed Land use for recreation purposes increase to 313.91 hectares i.e.5.21 % of the master plan area or 11.63 % of the total developed area keeping in mind the increase of population up to the year 2041.



DDR College field



Bismile playground



Chabua Stadium



Betmela playground



Habichuk playground



Indoor Hall

CHAPTER - 7

7. ENVIRONMENT, TOURISM AND CITY BEAUTIFICATION PLAN

7.1 Description of eco-friendly areas –

There are many eco-friendly/heritage sites in Chabua which became the pride of Chabua.

7.2 Plan/Measures for protection and conservation of environmentally-friendly zones.

Being environmentally friendly simply means having a lifestyle that is better for the environment. It's all about taking small steps towards mother earth so as to make this planet a better place for our communities and generations to come. A good way would be to start with conserving water, driving less, walking more, consuming less energy, buying recycled products, eating locally grown vegetables, joining environmental groups to combat air pollution, producing less waste, planting more trees and many more. The more that we do on our part the faster we will create an environment of living that promotes sustainability.

In the environmentally friendly zone, there is more than just a good recycling programme in place. People of the town who are committed to conservation and preservation of resources should encourage options like community play grounds, public transportation, green construction and work to change the way that fossil fuels and other resources are used to support community services.

This plan suggests following proposals for protection and conservation of environmentally friendly zones-

- (i) People of Chabua urban area should join hand with environmental groups to protect the town and make the environment clean and green.
- (ii) Reduce, reuse, recycle waste hierarchy is the order of priority of actions to be taken to reduce the amount of waste generated and to improve overall waste management processes and programs.
- (iii) Plantation habit should be grown up among the people. For this necessary awareness camp should be organized by competent authority for conservation of natural resources and composting system.
- (iv) Steps should be taken by the authority to stop people from littering on roads. Instead, educate them to put trash and garbage in dustbins. The pile of garbage on road hampers the beauty of the city and also pollutes the air.
- (v) Steps should be taken by the concerned authority to reduce the emitted hazardous chemical and gases in industrial activities.



Plantation habit



Reduce, reuse, recycle waste

7.3 City Beautification Plan/ Tourism sites :-

To improve town's appearance and aesthetic view, neighbourhoods often try to update what is known as streetscape, which pertains to the area between the driving lanes and the edge of the private property. Partly this is a popular strategy because it is public space and it's easy for the government to dictate what will happen there. In truth, streetscape can be quite effective in uniting block faces or a series of blocks that are discordant in some way, because streetscape often includes plantings, the effect is to soften the view created by streets and hopefully sidewalks. Care in the choice of materials and in the quality of the installation makes all the difference in this form of beautification.

Dinjoy Satra is a popular tourist attraction cum religious site in Chabua. It was founded by Shri Aniruddha Dev who was one of the twelve principle disciples of Gopal Atadev, a religious figurine in Assamese culture. It is a socio-cultural institution of the vaishnavites.



In addition to streetscape, sometimes we need a focal point. This might be public art and open-air theatre, fountains, a clock tower or grouping of tall grasses. If we already have a lonely statue or old historical building with nothing around it, maybe we should add planting beds of considerable size, an inviting bench or two, and maybe an interpretive sign explaining the rest of the store". A tree planting project, either on a vacant plot, in a park, or in the parkway between the side walk and the street is great for improving Towns appearance over the course of a few years at a relatively low cost. Voluntary schemes should be taken up by neighbourhood basis for cleaning up the park of the town. Project should also be taken up for cleaning the river or stream.

7.4 Roadside Plantation-

The main object of road side plantation is to provide protection to road, traffic, check soil erosion, food, fuel, fodder and timber to the society and mitigate climate change issues. Plantation is durable assets that produce fruits and raw-materials for agro based industry, and also generate livelihood after 7to 10 years.

This plan suggests the social forestry department to prepare project on road side plantation with details of road to be covered, length of road and species of plants to be planned with numbers of plants for entire Chabua master plan area.

Plantation of fruit bearing plants, suitable to local agro-climatic condition should be done in every area of the master plan. The authority concern should take steps for organizing camp and awareness program for road side plantation and educate the people about the benefits of road side plantation including its impact on city's landscape.



7.5 Urban Agriculture and Urban Forestry.

Urban Agriculture is the new culture that is catching up in emerging cities. Since the population growth rate is very high, natural resource to feed the increasing population in coming days is going to be a difficult task. So, urban agriculture is seen as a big solution to the problem.

Urban forestry is the careful care and management of tree in urban settings for the purpose of improving the urban environment. Urban forestry advocates the role of trees as a critical part of the urban infrastructure. Urban forest function is thus often oriented toward human outcomes, such as shade,



beauty and privacy. Urban forests bring many environmental and economic benefits to town. Among these are energy benefits in the form of reduced air conditioning, reduced heating by shading buildings, homes and roads, absorbing sunlight, reducing ultraviolet light, cooling the air and reducing wind speed.

So, urban forestry scheme should be taken by competent authority for afforesting degraded forest land in the Chabua master plan area. This type of scheme will act against climate change by creating a carbon sink and against air pollution in the town. This plan also suggests for starting tree surveys in the town which can be conducted by NGO and college or school students. A plan should be framed to create small nurseries in Govt. school as well as in private institution where there is extra space.

7.6 Public Rain Water Harvesting Scheme

Rainwater harvesting is a process involving collection and storage of rain water that runs off natural or man-made catchment areas, e.g., roof top, Compounds, rock surface or hill slopes or artificial repaired impervious/semi-pervious land surface.

Due to deforestation and the consequent ecological imbalance, the ground water level is going down day by day. The constant rising demand of water supply especially from the urban areas does not match with the surface water sources, as a result of which the water reserves beneath the ground level are over exploited. This consequently results in the water level depletion.



Water harvesting apart from recharging the ground water level, increases the availability of water at a given place at a given point of time. It also reduces the power consumption. It further reduces the run off which chokes the storm water drains, artificial flooding, chances of soil erosion and improves the quality of water. The plan suggests rain water harvesting scheme to be implement by a competent authority. Moreover, the urbanization trend reduces the infiltration rate of rain water into the sub-soil there by reduces ground water recharging.

7.6.1 Development of Parks and Recreation Spaces-

The Plan recommends 313.91 hectares of land for recreational purposes. The plan envisages a Town hall to meet the social and cultural needs of the town and also recommends modernizing the existing play ground with adequate

infrastructure. The plan proposes an indoor stadium near circle office and parks under Chabua Master Plan as follows: -

- a. Chungichuk gaon besides Kanjikhowa Golf Course
- b. Hatkhula Bongali Gaon
- c. Chabua TE 151 ORR
- d. Balijan Pani Era Gaon
- e. Opposite Circle Office

URDPFI Guideline for Parks and Recreation Spaces

The provision of socio- cultural facilities shall correspond to the changing urban demography and work life style.

TABLE NO-38
NORMS FOR SOCIO- CULTURAL FACILITIES

Sl.No.	Category	Population Served per unit	Land Area Requirement (Sq.m)
1	Aganwadi- Housing area / Cluster	5000	200-300
2	Community Room	5000	750
3	Community hall / Marriage Hall/ Library	15000	2000
4	Music, dance and drama centre	1 Lakh	1000

TABLE NO-39
Norms For Recreational Facilities

Sl.No.	Category	Population Served per unit	Area Requirement (Ha)
1	Housing Area Park	5000	0.50
2	Neighbourhood Park	15000	1.00
3	Community Park	1 Lakh	5.00

TABLE NO-40
Norms for Sports Facilities

Sl.No.	Category	Population Served per unit	Area Requirement (Sq. M)
1	Residential unit play Area	5000	5000
2	Neighbourhood Play Area	15000	1.5
3	Town sports centre	1 Lakh	8.00

7.7 Beautification of Major Transit Zone

Chabua has emerged as a major transit zone for tea, and fruits like orange. Tea of Chabua transit to all over India. So, it is very much essential to beautify and upgrade the major traffic points like bus stand, railway station, market area of this emerging transit zone of upper Assam.

7.8 Road Signage and Street Furniture

Road signs are signs erected at the side of or above roads to give instruction or provide information to road users. The earliest signs were simple wooden or some milestones. But in course of time, many states of India have been adopting pictorial signs or otherwise simplified and standardized their signs to overcome language barriers and enhance traffic safety, such pictorial signs use symbols in place of words.

Street furniture is a collective term for objects and pieces of equipment installed on streets and roads for various purposes. It included Benches, traffic barriers, bollards post boxes phone boxes, street lamps, traffic lights, traffic signs, bus stops, taxi stand, public lavatories fountains, public sculptures and waste receptacles an important consideration in the design of street furniture is how it affects road safety.

In Chabua Master Plan Area existing road signs and furniture are inadequate for increasing traffic and those are not also scientifically designed.

So, the plan suggests to authority concern to take steps for the installation of warning, priority, prohibitory, mandatory, information, facilities, service, direction, position and indication signs in the roads of Chabua town, so that local people as well as outsiders can be benefitted and road safety can be maintained.

In Chabua master plan area presently there is no street furniture necessary for the public. The concern authority should take steps for the construction of public lavatories at important public places and installation of benches in the park and public places, post boxes, bus stop, taxi stand, waste collectors etc.



This plan recommends for preparation and execution of a city beautification plan covering street light, traffic signal etc. that will enhance the beauty of this resource full town.

CHAPTER -8

8. LAND USE PLAN

8.1 Developable and Non – Developable Area of the Master plan

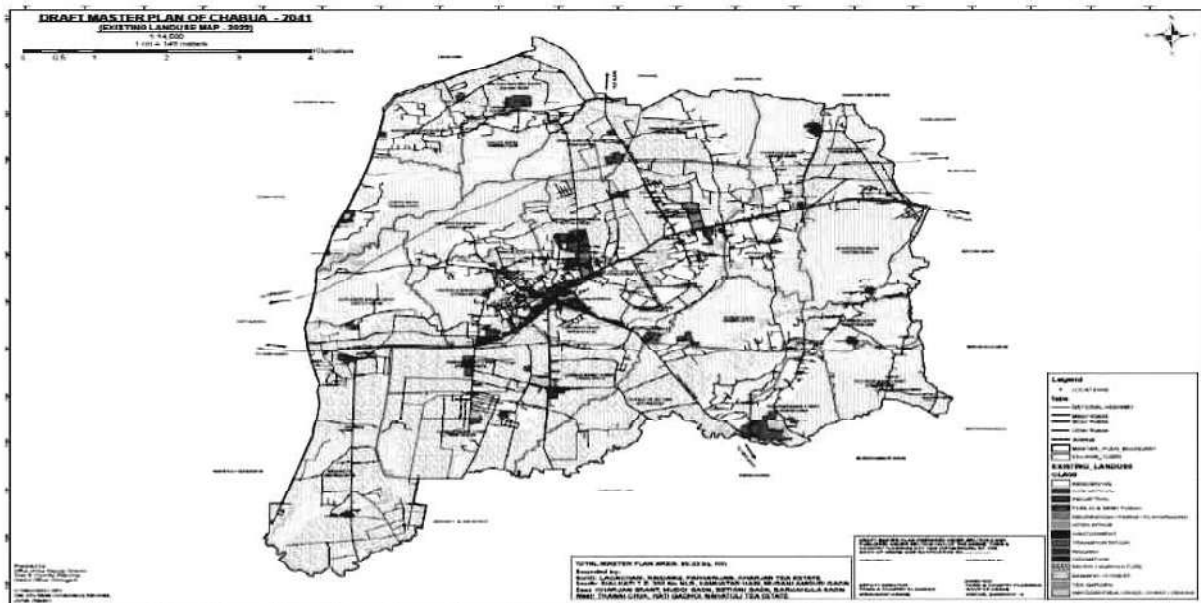
Urban growth and development are often conditioned by the natural landscape like hills, water bodies, forests and manmade impediments like railway line, major roads & canals etc. It is also conditioned by the resources and technology employed in overcoming the impediments and constraints.

Existing Chabua master plan is mainly situated in flat land. Except the railway line there is no other physical feature acting as a constraint for development. The soil is very fertile and good vegetation and tea garden is observed in the region.



The quality of urban life and its functional efficiencies are governed by its land-use pattern. In order to understand and analyze systematically the functional relationship between various uses particularly the place of living, business place, industrial activity, education, recreation, agricultural activity etc., a detail land-use survey was conducted during the year 2022 to estimate the present and future need of the urban area as well as master plan area. Chabua master plan covers an area of 6023 hectare (60.23 Sq.km), out of which developed area is 1302 hectare (13.02 sq.km.) i.e., 21.63 % of the total plan area and non-developed area is 4721 hectare (47.21 sq.km.) i.e., 78.38 % of the total plan area.

8.2 Existing Land Use



The existing land use and the areas occupied by each use in Chabua Master Plan Area is shown in the following table:

TABLE NO-41
EXISTING LAND USE - CHABUA MASTER PLAN AREA IN 2022

Use	Chabua Master Plan Area in hectare	Percentage of the Chabua Master Plan Area (%)	Percentage of the total developed Area (%)
Residential	1024	17.00	78.65
Commercial	15.6	0.26	1.20
Industrial	53.1	0.88	4.08
Public & Semi Public	59	0.98	4.53
Recreation	65	1.08	4.99
Circulation	70	1.16	5.38
Defence	16	0.27	1.23
Total Developed Area (A)	1302	21.63	100.00
Agriculture	2860	47.48	

Green Belt	Tea Estate	1674	27.79	
	Urban Forestry	55	0.91	
Open Space		77	1.28	
Water Bodies		55	0.91	
Total Undeveloped Area (B)		4721	78.38	
Grand Total Plan Area (A+B)		6023	100	

Source: - Town & Country Planning, Dibrugarh Land Use Survey 2022 & GIS calculation.

Figure-33
Existing Land Use Distribution in Chabua Master Plan

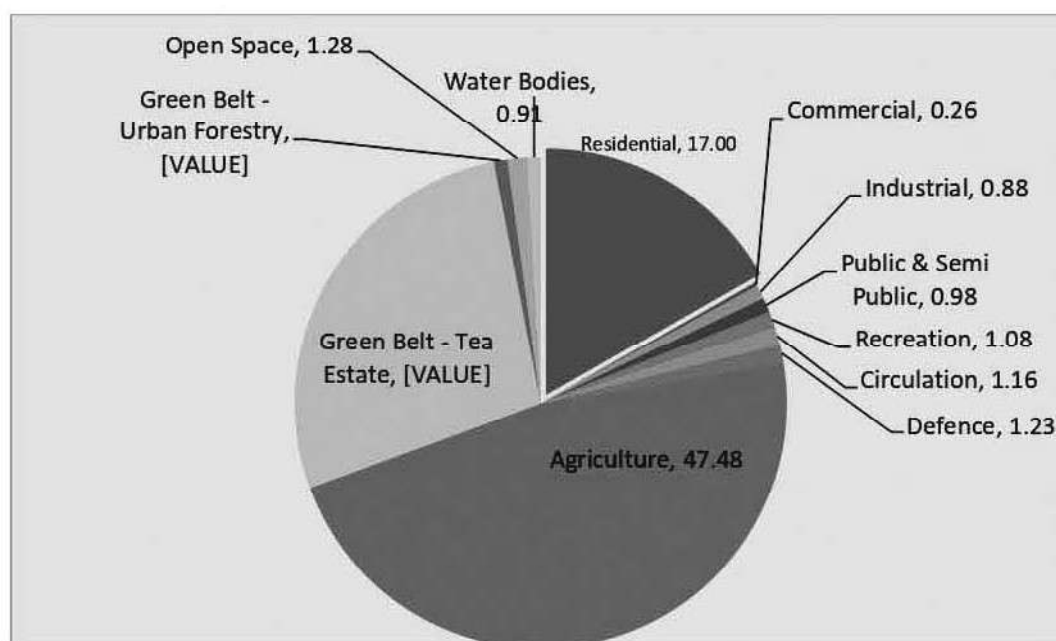
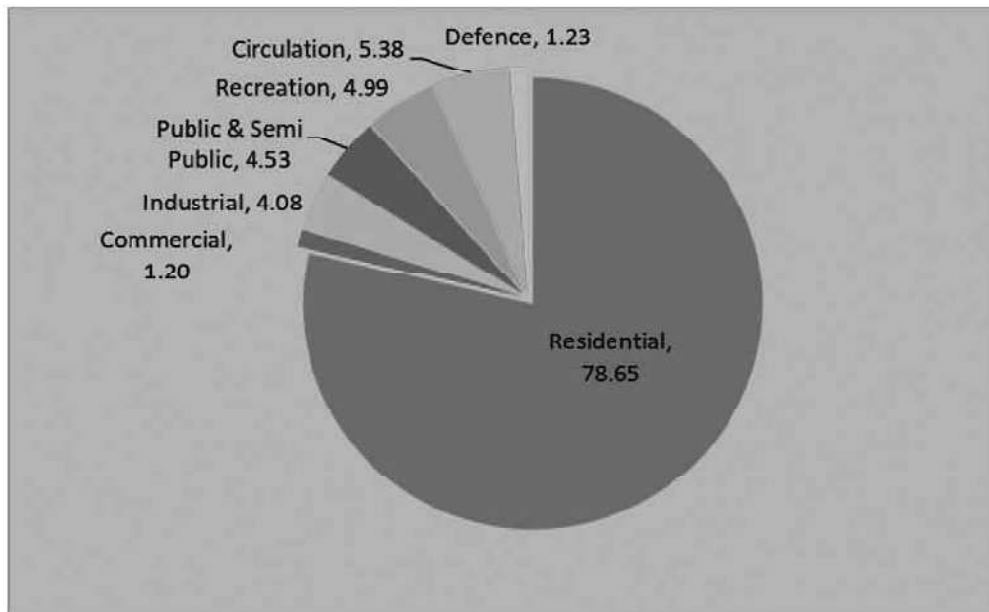


Figure-34
Existing Land Use Distribution in Developable area of Chabua Master Plan



In Chabua master plan area, 1024 hectare of land (17% of master plan area and 78.65 % of total developed area), is use for residential purposes.

In Chabua master plan area, 15.6 hectare of land (0.26% of master plan area and 1.20% of total developed area) is used for commercial and business purposes. The business area in Chabua spread over both sides of NH-15. Vegetable, grocery and food market are located in compact manner at Chabua Daily Market. The roads being narrow, no provision of parking area in market places and on road parking of all types of vehicles including commercial vehicles at market area creates traffic congestion in the area.

In the master plan area 53.1 hectare of land (0.88% of master plan area and 4.08% of total developed area) is used as industrial activities. Existing brick kiln industries is located at Pulunga gaon by the side of Chabua-Tengakhat road.

The land use for Public and Semi-public purposes including educational institutions, government offices, health care etc. are 59 hectares of land (0.98% of master plan area and 4.53 % of total developed area). The land uses under this category is scattered all over the master plan area.

In master plan area, 65 hectares of land (1.08 % of master plan area and 4.99 % of total developed area) is used for recreational purposes. In Chabua for outdoor games 1 stadium, 5playgrounds, 1 Indoor Hall, besides there is 1 field for outdoor games of own educational institutions of DDR College and various other open spaces fulfill the recreational activity of the people of Chabua.

Transportation & circulation network of a town or planning area plays an important role and affects immensely the economic and socio-cultural life of the

planning area. A well-developed road network can provide answer to many problems of urban life. Accordingly, in CMPA, the land use for circulation purposes is 70 hectares of land (1.16 % of master plan area and 5.38 % of total developed area).

Defense occupies 16 hectares of land (0.27% of master plan area and 1.23 % of total developed area).

In CMPA, land use for agricultural purposes is 2860 hectare of land (47.48 % of the master plan area). Agricultural activities mainly take place in Kumar gaon, Morankari gaon, Bhardhara gaon, Rajabari gaon, Pulunga gaon, Chungichuk gaon, Dinjoy Satra, Moricha Koibarta gaon, Chetia gaon, Deodhaikopow gaon, Hatkhula bongali gaon and Koilabari gaon.

Under, Green-belt - Tea estate areas occupy 1674 hectare of land (27.79% of master plan area). In the master plan area, there are 3 tea gardens and most of them have their own tea factories. Under Green belt - Urban Forestry covers an area of 55 hectare of land (0.91% of the master plan area).

Open space constitutes an area of 77 hectare of land (1.28% of the master plan area). Small size open space area scattered all over the master plan.

Water bodies constitute an area of 55 hectare of land (0.91% of the master plan).

Key Issues / Shortcomings

1. Restricted capacity of road and loss of productivity due to railway crossing etc.
2. No parking spaces are available in commercial area in particular and town as a whole.
3. Due to illegal vending sometimes the actual accessible patch of road is decreased to half lane only.
4. No proper Bus stand or terminal in Chabua town.
5. Non-existence of notified industrial area.
6. Inadequate recreational facilities.
7. Poor coverage of drainage system within master plan area.
8. Lack of proper solid, hospital and e-waste disposal and management system.
9. Lack of fire service.

Strength

- Well connected by road, railways and air.
- Glorious history.
- Unique natural beauty of tea estates.
- Diverse culture and social harmony.
- Traditional economy dominated by Agri- economy
- Sports activity and sports education.

8.3 Proposed Land use:

Land use planning has a bearing on the expansion of the town and put pressure on outer growth area and in rural areas. A change in urban economic function changes its population growth. The decision to set up administrative block, commercial activities, industrial estate, educational institution, health care as well as any government policy to stimulate the urban economy accounts for population growth as well as create opportunities for employment and business expansion.

The proposed Chabua master plan covers an area of 6023 hectare (60.23 sq.km.), out of which about 2699.7 hectare (44.82%) of land is proposed to be developed up to the year 2041 for a projected population of 82632 persons.

The following table shows the proposed distribution of land use in Chabua master plan area up to 2041.

TABLE NO-42
PROPOSED LAND USE - CHABUA MASTER PLAN AREA UPTO2041

Use	Chabua Master Plan Area in hectare	Percentage of the Chabua Master Plan Area (%)	Percentage of the total developed Area (%)
Residential	1430.11	23.74	52.97
Commercial	74.5	1.24	2.76
Industrial	281.43	4.67	10.42
Public & Semi Public	273	4.53	10.11
Recreation	313.91	5.21	11.63

Circulation		310.75	5.16	11.51
Defence		16	0.27	0.59
Total Developed Area (A)		2699.7	44.82	100.00
Agriculture		1546	25.67	
Green Belt	Tea Estate	1590.3	26.40	
	Urban Forestry	55	0.91	
Open Space		77	1.28	
Water Bodies		55	0.91	
Total Undeveloped Area(B)		3323.3	55.18	
Grand Total Plan Area (A+B)		6023	100	

Source: - Town & Country Planning, Dibrugarh Land Use Survey 2022

Figure-35
Proposed Land Use Distribution in Chabua Master Plan

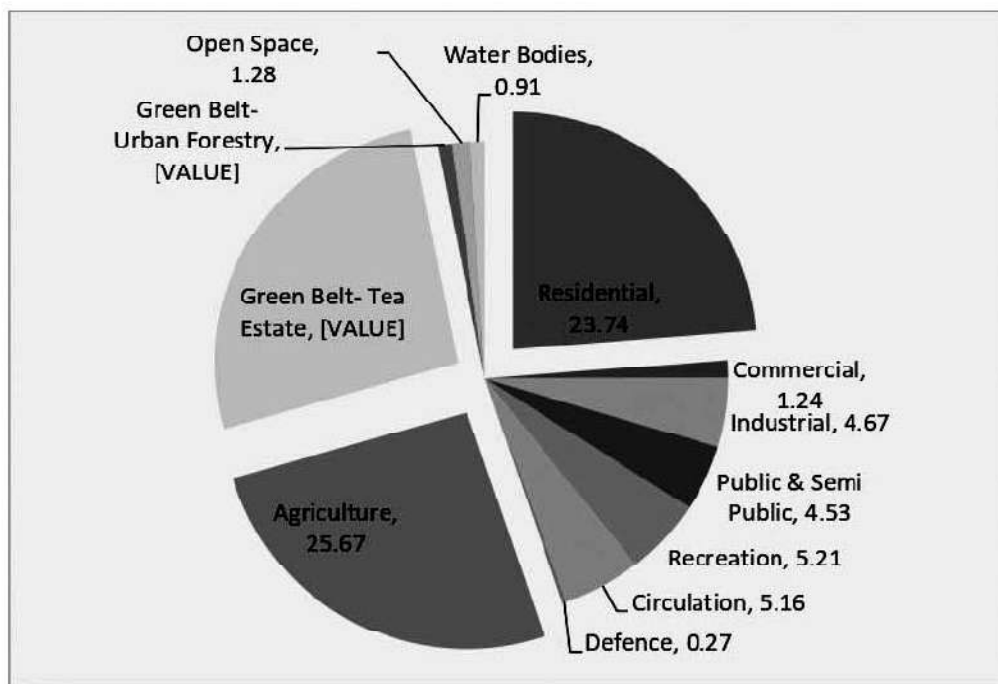
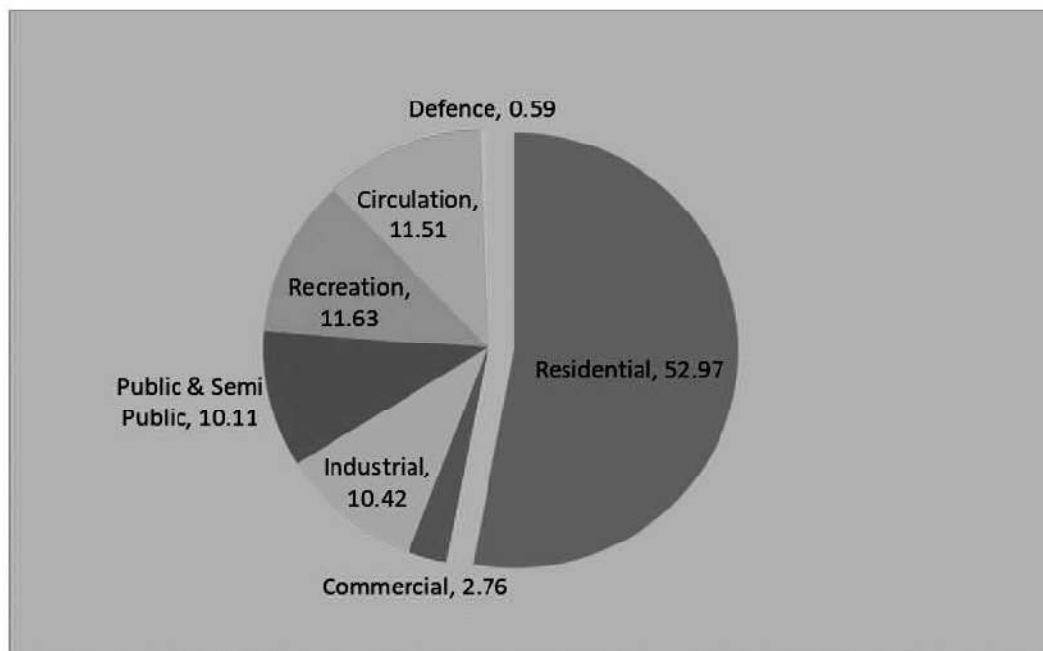


Figure-36
Proposed Land Use Distribution in Developable area of Chabua Master Plan



An area of 1430.11 hectare of land i.e., 23.74 % of the master plan area and 52.97 % of the total developable area has been earmarked for residential use for projected population of 82632 persons of Chabua master plan area up to the year

2041. It is presumed that a part of the total projected population will be residing in the mixed used areas. In the proposed land use plan, the population density of the master plan area in the year 2041 will be 1372 persons per sq.km. The residential density of CMP area for the year 2041 will be 12.84 Dw/per hec. The following gross residential density is recommended in the plan: -

1. Low density : up to 50 persons per hectare
2. Medium density : 50 - 100 persons per hectare
3. High density : 100-150 persons per hectare

Land earmarked for commercial activities is 74.5 hectare of land (1.24 % of the master plan area and 2.76% of the total developable area).

Land earmarked for industrial activities is 281.43 hectare of land (4.67 % of the master plan area and 10.42 % of the total developable area).

In the plan the land earmarked for Public and Semi-public activities increases to 273 hectares of land (4.53 % of the master plan area and 10.11 % of the total developable area) for establishing Govt. offices, education institution and health care facility for the growing population.

In the same way to meet the demand of growing population, the area earmarked for recreation facilities has also been increased to 313.91 hectare of land (5.21 % of the master plan area and 11.63 % of the total developable area) for establishing parks, playground and indoor game facilities.

In the proposed land use plan, the land earmarked for circulation is 310.75 hectare of land (5.16 % of the master plan area and 11.51 % of the total developable area). In the plan new roads has been proposed to link up the sub-arterial and other road to arterial road. Besides for the efficiency of circulation pattern bus stand, truck stand and fly-over has also been proposed in the plan.

The plan proposes open space of 77 hectare i.e. 1.28 % of the planning area and the plan earmarked open space under the category of no construction zone. An area of 55 hect. i.e 0.91 % of the planning area has been earmarked as water bodies in the proposed master plan map. **The plan proposes 15 mtr buffer zone or no construction zone along natural water channel, ponds, river and wetland inside municipal area and 50 mtr outside municipal area.**

CHAPTER- 9**9. PROPOSED PROJECT, BRIEF AND TENTATIVE FUNDING SOURCE****9.1 Identify Priority Sectors and Project**

The plan proposals for Chabua master plan area spread up to 2041. It is quite obvious that the natural development will continue and the private developers will play an important role in this respect. As such, the private development is encouraged in conformity with the master plan. It is strongly recommended to stop unplanned and sporadic developments but to encourage balance planned and sustainable development where the provision for necessary physical infrastructure and socio-economic amenities are economically made possible. There are some immediate necessities as pointed out by the various stake holders, which are to be taken up as priority schemes for the master plan area which is listed below:

Short Term Proposals

1. Welcome gate & beautification on the entry point of either side of the town.
2. Protection & preservation of low-lying area, ponds and all natural channels.
3. Providing adequate street light, improvement of traffic signal point and parking area with road signage.
4. Notification on walking track around the Chabua stadium.
5. Demarcation of proper drainage network.
6. Creation of Pool of resource person like driver, electrician, plumber etc.
7. Proposal for fire station at Dinjoy- Chapori gaon by the side of Bypass.
8. Setting up of organic farming and agricultural marketing board.
9. Plantation at all major roads, educational institution, Govt. offices.
10. Preparation of drainage master plan
11. Improvement of existing hospital and dispensary.
12. Provision for vending zone in master plan area.

Long Term Proposals

- 1 Widening of roads as per IRC guidelines with utility duct provision

- 2 Proposal for Construction of a Town Hall.
- 3 Proposal for Affordable housing
- 4 Proposal for Improvement and development of existing ASTC bus stand
- 5 Proposal for Construction of Vendor and Hawker Market.
- 6 Proposal for T-type Fly Over with ROB
- 7 Proposal for Solid Waste Management System
- 8 Proposal for Recreational Facility like Park.
- 9 Proposal for Agro based hub
- 10 Proposal for Indoor stadium
- 11 Proposal for Rural economic growth
 - Organic farming (Mushroom cultivation)
 - Promotion of local handicraft and handlooms.
 - Food processing
 - Creation of seed bank.
 - Agricultural credit societies.
 - Provision for Hut/Shed for weekly market.
- 12 Proposal for Naturopathy Centre
- 13 Proposal for Development and improvement of existing playground
- 14 Proposal for Improvement and development of existing Cremation & Burial Ground
- 15 Proposal for Cycle track
- 16 Proposal for Truck stand & Logistic Hub
- 17 Proposal for Industrial Area
- 18 Proposal for Faecal Sludge Treatment Plant.
- 19 Proposal for Effluent Treatment Plant (2 Nos.)
- 20 Proposal for Muttock Museum
- 21 Proposal for Fuel Station & Gas Godown
- 22 Proposal for installation of fire hydrant at market place and strategic location of the town.

In the first phase, the schemes like widening and improvement of roads, construction of new roads, establishment of health centre, provision for required spaces for parks, playgrounds and parking places and improvement of commercial and market areas including existing market, daily bazaar etc. can be taken up. The Chabua Municipal Board has to play an important role visioning with other Govt. agencies in formulation and execution of such schemes in the master plan area. All the above schemes need to be carried out to make the plan area into a healthy place of living.

9.2 Fund Requirement for Each Sector/ Project

Fund requirement for each sector project will be finalized by the ULB & concerned line department after preparation of detailed project report as per Govt. instruction.

9.3 Identify Land Site for Proposal

The plan finds the following sites are suitable for taking up the proposals in accordance with the existing trends of growth as well as for balanced development.

- (1) Bus Stand: Improvement of existing ASTC bus stand



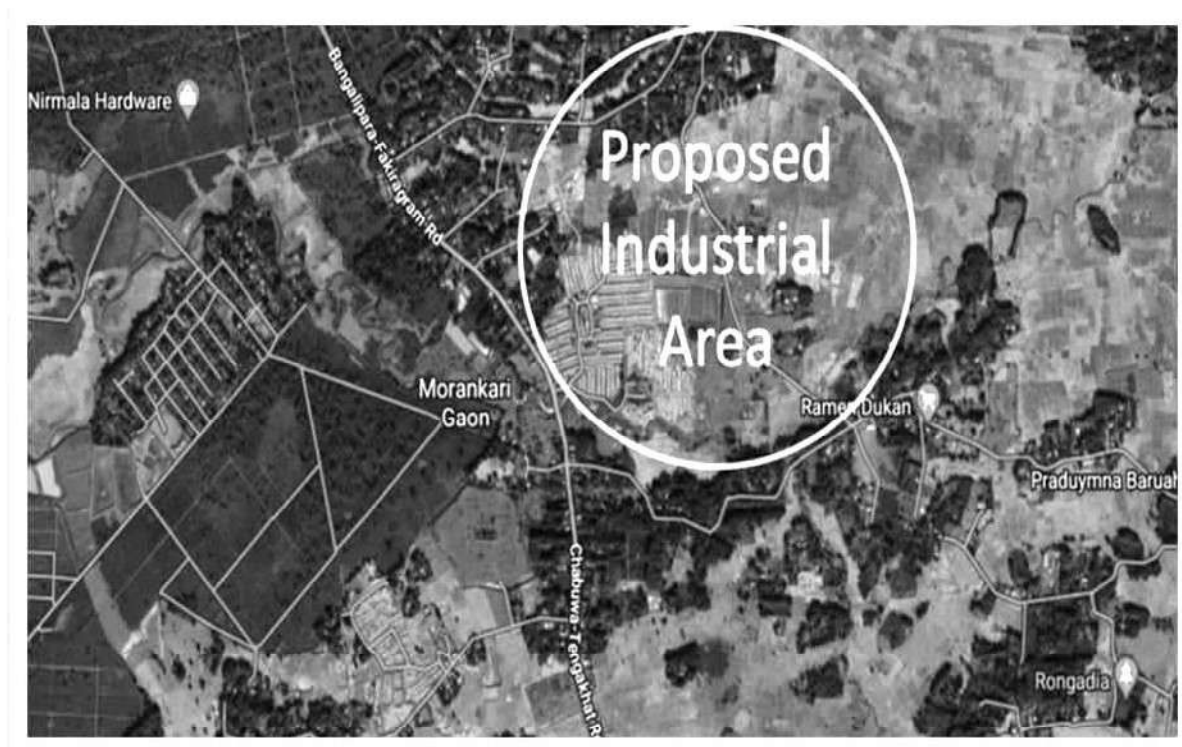
(2) Affordable Housing at Hatkhula Bongaligaon by the side of Hatkhula road.



(3) Truck Stand and Logistic Hub at Dinjoy Chapori gaon by the side of the Bypass.



- (4) Proposed Industrial Area at (i) Pulunga gaon Part-1 (by the side of Chabua-Tengakhat road) and (ii) At Bypass.



-
- An aerial photograph of the DDR College campus and surrounding area. A white circle is drawn around a building complex in the center-left, with the text 'TOWN HALL' overlaid in white capital letters. Other labeled locations include 'DDR College Library', 'Auditorium DDR College', 'College Road', 'BASTAB HOME', 'Hatipati Path', 'Hatipati High School', 'Panjati Path', and 'gayatri nursery'. The 'Google' logo is visible at the bottom center.

-
- Merali Palmar
 Sarvajani Vaishnav
 Road, Chabua
 MG Model Hospital Chabua
 Mahatma Gandhi Hospital (Model hospital)
 Chabua RHTC
 WHO Health Centre
 Playground Proposed Indoor Stadium

(7) Proposed Naturopathy Centre near Mahatma Gandhi Model Hospital, Chabua



(8) Proposed Park: -

- a. Chungichuk gaon besides Kanjikhowa Golf Course



- b. Hatkhula Bongali Gaon
c. Chabua TE 151 ORR
d. Balijan Pani Era Gaon
e. Opposite Circle Office

- (9) Proposed T-type Fly-over at the junction point of NH-15 & Chabua-Tengakhat Road



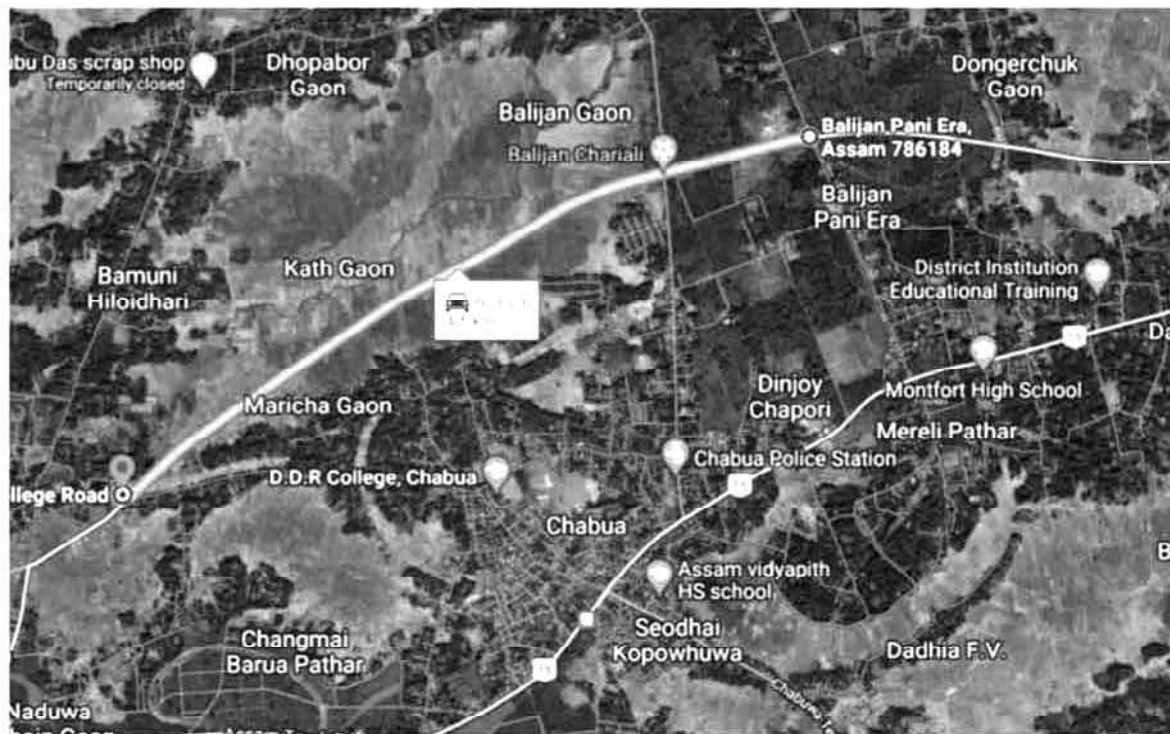
- (10) Proposed Agro-based Hub at Dinjoy Chapori gaon by the side of Dinjan stream.



(11) Proposed Fire-station at Dinjoy-Chapori gaon by the side of Bypass.



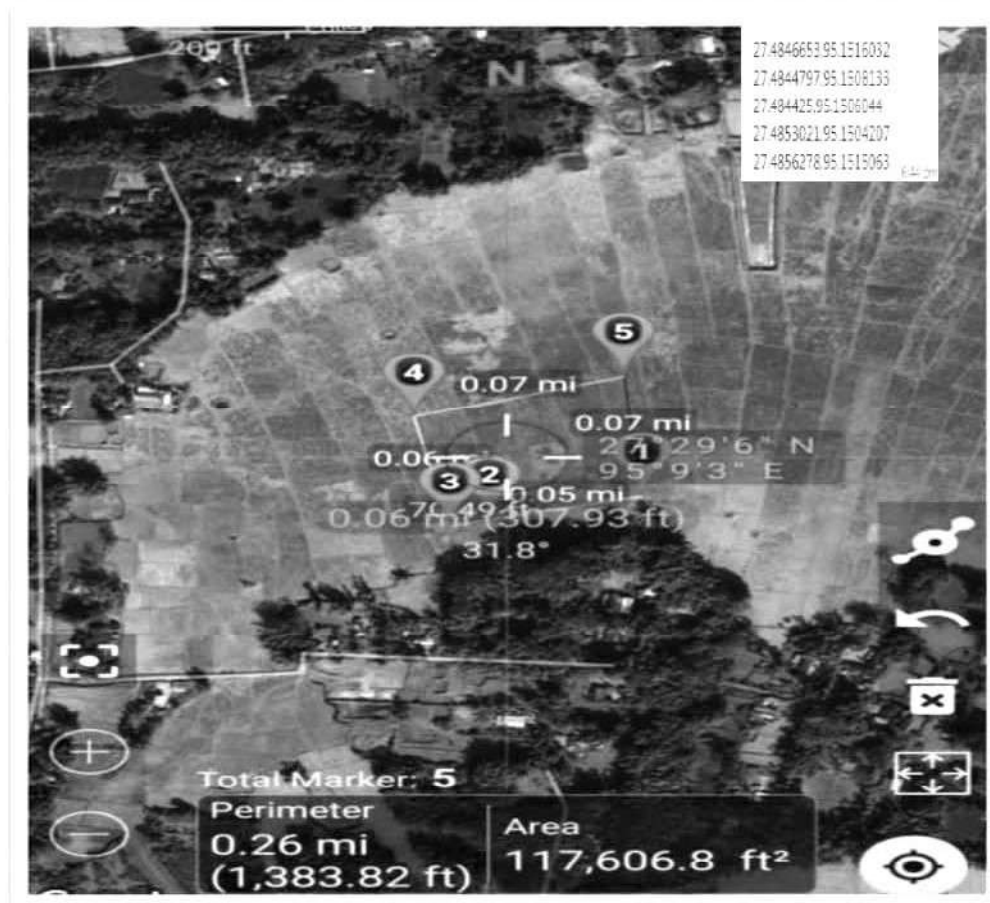
(12) Cycle Track at Bypass (from College Road, Koilabari bagan gaon to Borbari bongali gaon)



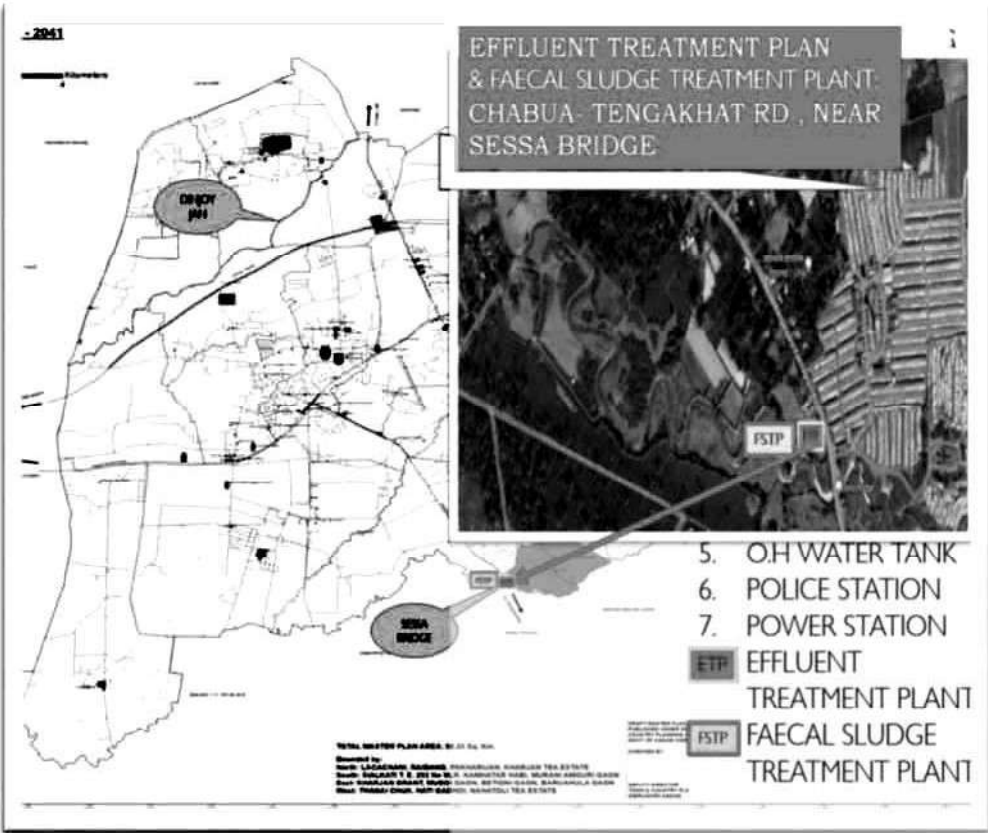
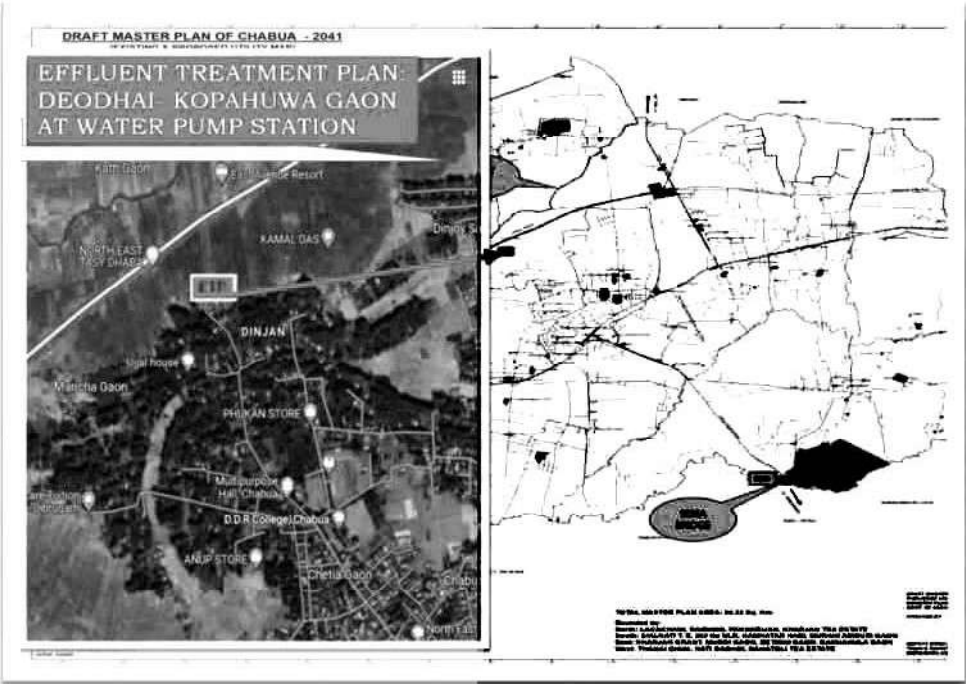
(13) Vendor's & Hawker's market at Chabua Daily Market



14) Solid Waste Management



15) Effluent plant & Faecal Sludge Treatment Plant



9.4 Indicative Sources of Fund

The ULB & concerned line departments will submit the DPR's to their respective departments for sanctioning fund from State & Central Government under various schemes like NLCPR, NEC, 10% pool fund etc. The ULB's can also adopt the policy of Private Public Partnership (PPP) mode for raising the fund for a few remunerative projects.

TABLE :- 43 Tentative project cost of proposals for Chabua master plan

Sl. No.	Particulars	Tentative Project Cost (Rs) in Lakhs	Remarks
1	Construction of a Town Hall.	-	
2	Affordable Housing.	1500.00	PPP mode
3	Improvement & development of existing ASTC Bus Stand	500.00	
4	Construction of Vendor and Hawker Market.	300.00	
5	T-type Fly Over with ROB	7500.00	
6	Solid Waste Management System	5000.00	
7	Recreational Facility like Park.	600.00	
8	Agro based hub	1000.00	
9	Indoor stadium	1000.00	
10	Fire station	500.00	
11	Setting up of organic farming	300.00	
12	Naturopathy Centre	500.00	
13	Development and improvement of existing playground	500.00	
14	Protection and Preservation of all natural channels flowing in the master plan area.	1000.00	
15	Beautification of town with road signage, street light	200.00	
16	Improvement of existing traffic signal points and setting up new ones	200.00	
17	Improvement and development of existing Cremation & Burial Ground	500.00	
18	Water Supply		
19	Cycle track		
20	Walking track	200.00	
21	Truck stand & Logistic Hub	500.00	
22	Industrial Area	500.00	
23	Faecal Sludge Treatment Plant.	1500.00	
24	Effluent Treatment Plant (2 Nos.)	3000.00	
25	Preparation of drainage master plan with	5000.00	

	execution		
26	Welcome gate and beautification on the entry point of either side of the town	50.00	
27	Muttock Museum	1000.00	
28	Improvement of existing hospital and dispensary	3000.00	
29	Widening and improvement of roads		As per the survey.
	street lights	100.00	
	Development of parking area.	200.00	
	Total (Rs)	36150.00	

CHAPTER- 10

10. DISASTER PLAN

10.1 Hazards Specific Proneness in Chabua:

➤ **Earthquake: -**

As per the latest seismic zoning map of India, the Chabua region falls under High-Risk Zone- V, where a maximum intensity of IX can be expected.

➤ **Flood: -**

Even Chabua town is also facing urban flooding in many localities due to lack of proper drainage system.

➤ **Soil Erosion: -**

The soil erosion is major threat to many areas due to the Chabua river in some parts of the master plan area.

➤ **Fires: -**

The fire takes places in Chabua due to short circuit in commercial areas, thatched house. Mainly fire takes place from March to April when the climate remains very dry.

➤ **Cyclone: -**

In Chabua cases related to low density cyclone occurred in some places.

10.2 Need for Disaster Management

Data on disaster occurrence, its effect upon people and its cost to countries, are primary inputs to analyses the temporal and geographical trends in disaster impact. Disaster losses, provide the basis for identifying where, and to what extent, the potentially negative outcomes embedded in the concept of risk is realized. They help to understand where, and to whom, disaster risk becomes impact. They also provide the basis for risk assessment processes, a departing point for the application of disaster reduction measures.

Development cannot be sustainable unless disaster mitigation is built into development process. Investments in mitigation are more cost effective than expenditure on relief and rehabilitation. Prevention and mitigation contribute to lasting improvement in safety and are essential to the integrated disaster management system. Disaster response alone is not sufficient as it yields only temporary results at a very high cost. So, emphasis must be on Disaster prevention, mitigation and preparedness, which help in achieving objectivity of vulnerability reduction.

As per Section 40 of Disaster Management Act, 2005 that every department of the State Government shall prepare a Disaster Management Plan.

10.3 Importance of putting Disaster Management Plans In Place

Disasters are events that have a huge impact on humans and/or the environment. Disasters require Government intervention. They are not always unpredictable. Floods take place in valleys and flood plains, droughts in areas with unstable and low rainfall, and oil spills happen in shipping lanes. This predictability provides opportunities to plan for, prevent and to lessen the impact of disasters.

Disasters arise from both natural and human causes, and the responses needed could stretch community and government capacity to the limit. Disasters are inevitable although we do not always know when and where they will happen. But their worst effects can be partially or completely prevented by preparation, early warning, and swift, decisive responses.

Disaster management aims to reduce the occurrence of disasters and to reduce the impact of those that cannot be prevented. The Government White paper and Act on Disaster Management define the roles of Local Authorities as well as Provincial and National government in disaster management.

North East Region has been vulnerable to many natural and manmade disasters in the past. We can notice that most of the disasters have occurred within the last two decades, and the frequency, intensity and magnitude of the disasters are ever increasing.

10.4 Plan Objectives

The objectives of the Disaster Management Plan are:

- Disaster management in the routine affairs of the office
- To provide technical and humanitarian assistance during disaster
- Prompt and effective discharge of office responsibilities during disaster situations
- Ensuring safety of office infrastructure, human resource and other assets
- Ensuring safety of the beneficiaries and others
- Speedy restoration after disaster impact
- To conduct trainings and capacity building for effective prevention, mitigation and response for disasters.
- To undertake information, education and communication activities to create awareness among the communities and the general public.

10.5 Likely geographical extent and magnitude / severity

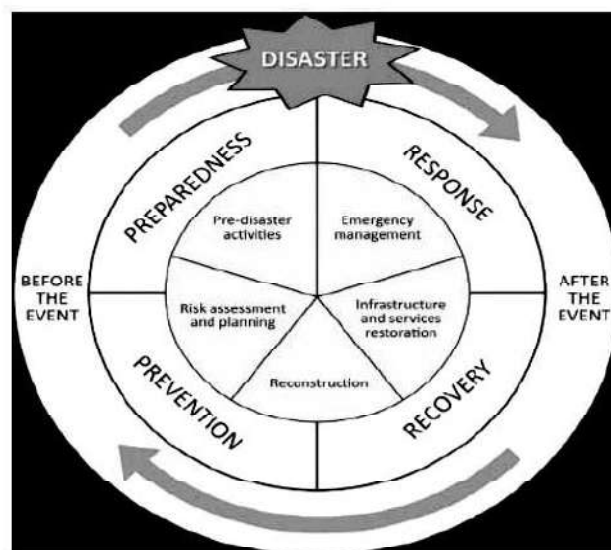
- 1) The master plan area is situated on a flat land. Chabua is severely prone to flood. Moreover, some parts of Chabua town are located in very low-lying area with poor drainage system with unplanned development, so there is every chance of flash flood due to heavy rainfall. Such flash floods have been experienced during last five years.
- 2) Assam as a whole is within the Zone V of earthquake zone. Especially Chabua has witnessed a devastating earthquake in 1950. So, it can be said that geographically and geologically Chabua is situated in a very hazards prone zone.
- 3) Chances of landslide are comparatively less in this region. But fire can break out in the congested residential, commercial areas and market of the town anytime during lean season. The region has faced cyclones several times in the past. Road accident, rail accident, etc. can occur at any time. Of course, riot is not so common in this region.

10.6 Disaster Management Cycle

In multi-hazard response plan, the disaster management cycle has a significant role to play. The four stages of disaster cycle have their own importance in terms of their implementation during, after and before the occurrence of any disaster.

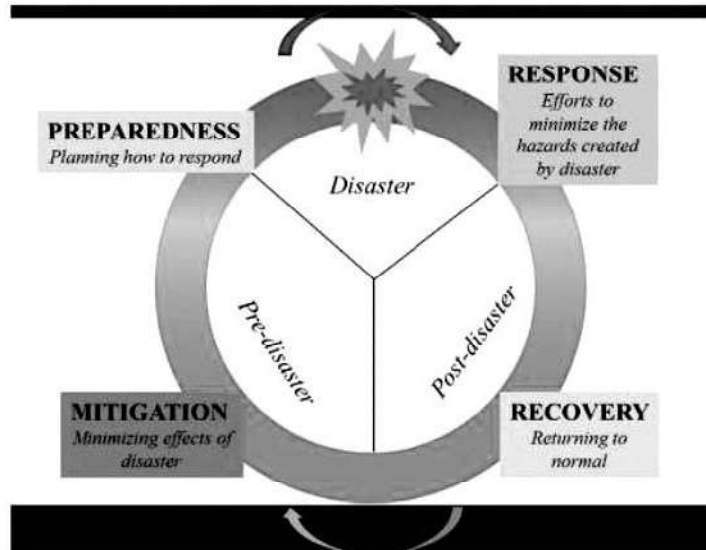
Pre disaster activities

1. Policy development and National, State, district, local level disaster organization formation
2. Vulnerability and capacity assessment.
3. Prevention and mitigation
4. Preparedness, planning and training



During Emergency activities

1. Warning (beginning before the actual event)
2. Evacuation, search and rescue
3. Emergency assistance (relief) – food, water, shelter, medical aid



Post disaster activities

1. Repair and restoration of life lines (power, telecommunications, water transportation)
2. Reconstruction and rehabilitation.

10.7 Formation of Chabua Disaster Management Cell (CDMC)

This Master Plan recommends for formation of a Chabua Disaster Management Cell (CDMC) in the office of the Chairman, Chabua Municipal Board, as per Section 40 of Disaster Management Act, 2005.

The CDMC has to be constituted with the following functionaries are Chairman/Chairperson of the municipal board as the Chairman of the cell, Vice Chairman of the municipal board as the Co-Chairman of the cell, Chief Executive officer of the municipal board as the Executive Officer and the members are SDO (Civil), Health, Roads, Building, other relevant department and the Assistant/Junior Engineer of the municipal board as Nodal Officer.

The CDMC will give emphasis towards the preparation of Chabua Disaster Management Plan. The plan also recommends that the CDMC cell to co-ordinate during emergency with the District Disaster Management Authority (DDMA) located at the Head-Quarter of the District. The CDMC Cell will provide all the available resources and manpower for Disaster Management. This Cell will mobilize the service of technical personnel for the damage survey work to help the District Administration.

The CDMC must meet at least once in six months i.e., in the month of March and September before the Disaster Season (Flood & Cyclone) of Chabua town under the chairmanship of the Chairman, Chabua Municipal Board & to update the plan. For this one month's prior notice should be given to all concerned departments before convening the meeting. Chairman should review the work of CDMC. An emergency meeting will hold whenever information is received regarding calamity.

10.8 Standard Operation Procedure (SOP)

The Master Plan recommends the CDMC for formulation of Standard Operation Procedure (SOP) for automatic response of the members during disaster.

- Written guideline that precisely defines how operations are to be carried out.
- An organizational directive that establishes a standard course of action.
- Written guidelines that explain what is expected and required of the personnel.
- Standardization of activities: -
 - Identify planned and agreed upon roles & actions.
 - Promotes coordination and communication amongst personnel.
 - Simplify decision making during potentially stressful conditions.

Proper implementation of Assam Notified Urban Area Building Rules – 2014 (ANUABR) & Sensitization among stake holders engaged for construction work / owners to use disaster resistant technologies

10.9 Rainwater harvesting

Chabua Zone has experienced heavy rainfall during summer season due to the south-western monsoon that leads to artificial floods not only in the plan area. So, the plan recommends adoption of rainwater harvesting system in construction activities that will reduce the volume of artificial floods in the master plan area and also help to maintain the ground water level.

10.9.1 Do's & Don'ts during

a) Earthquake



b) Fire

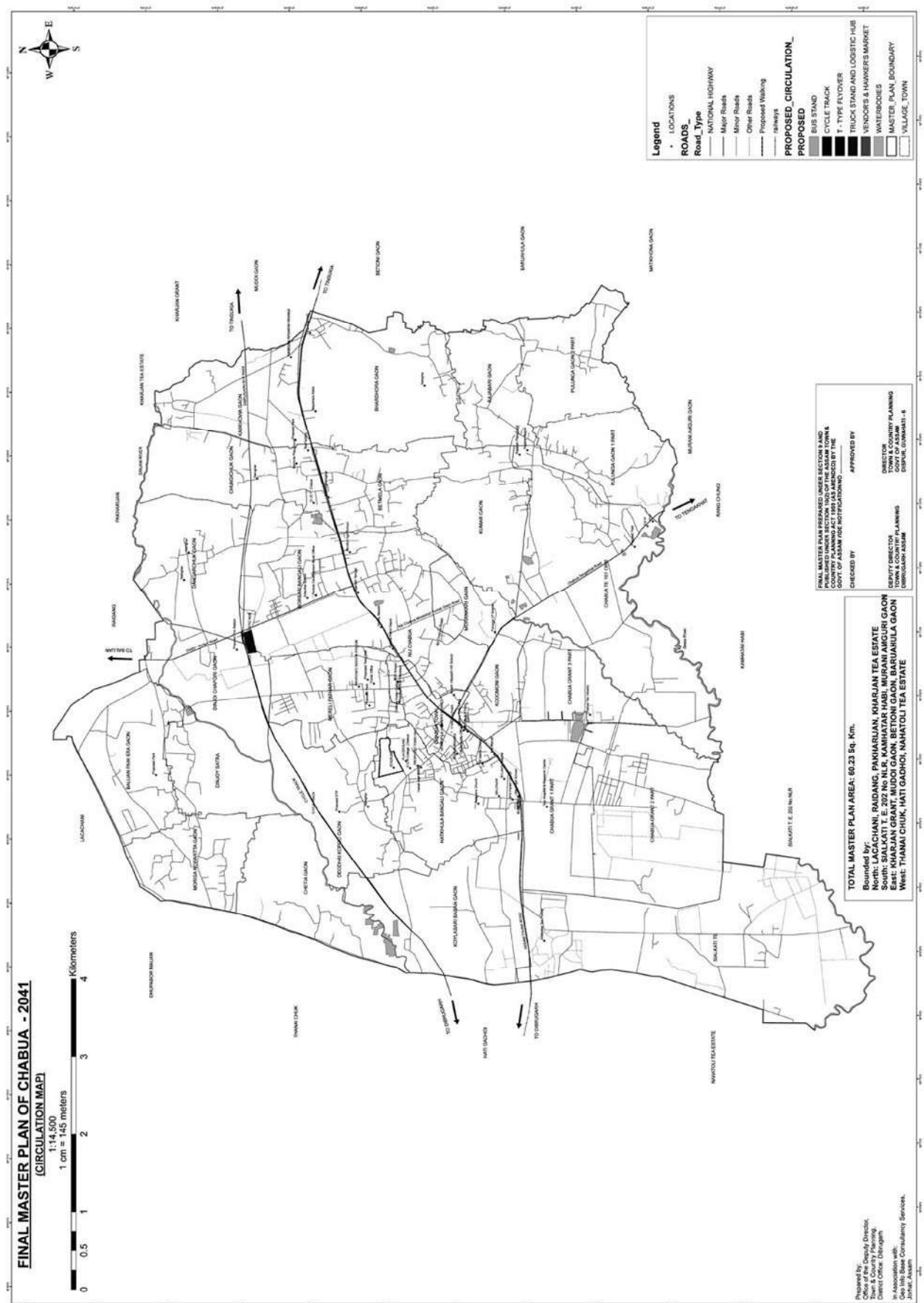


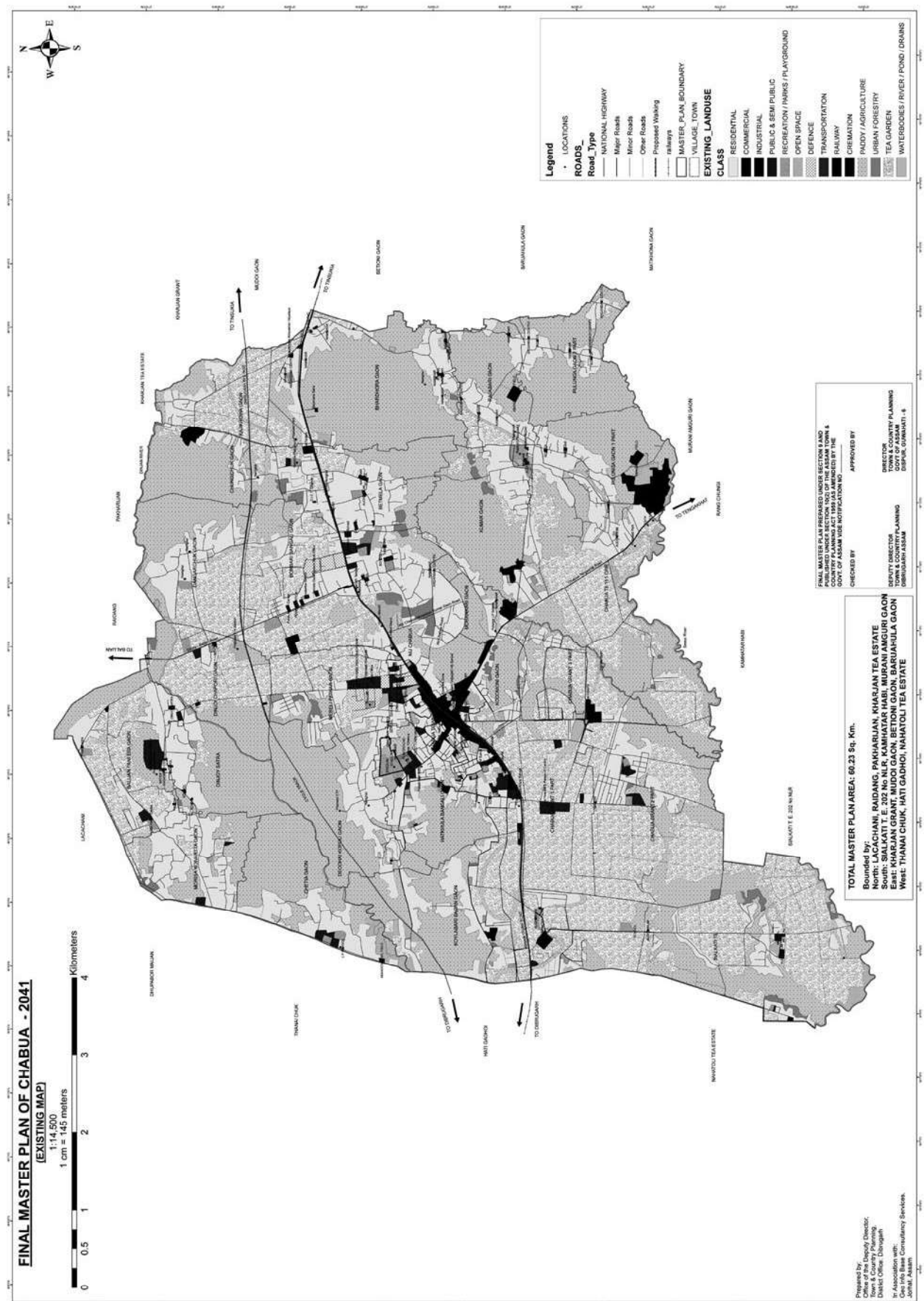
ANNEXURE-I

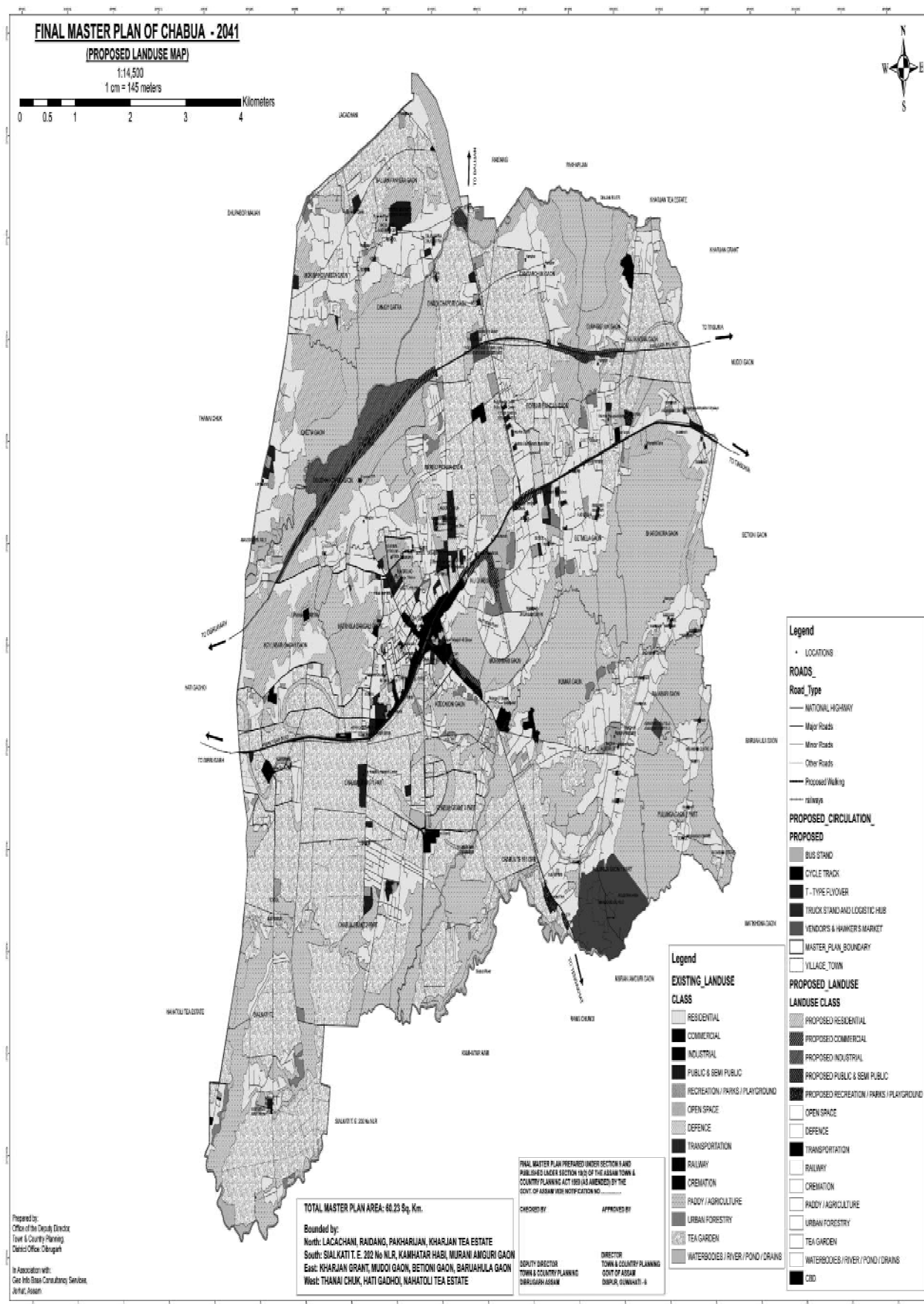
Table- 43
Actionable points for various line departments

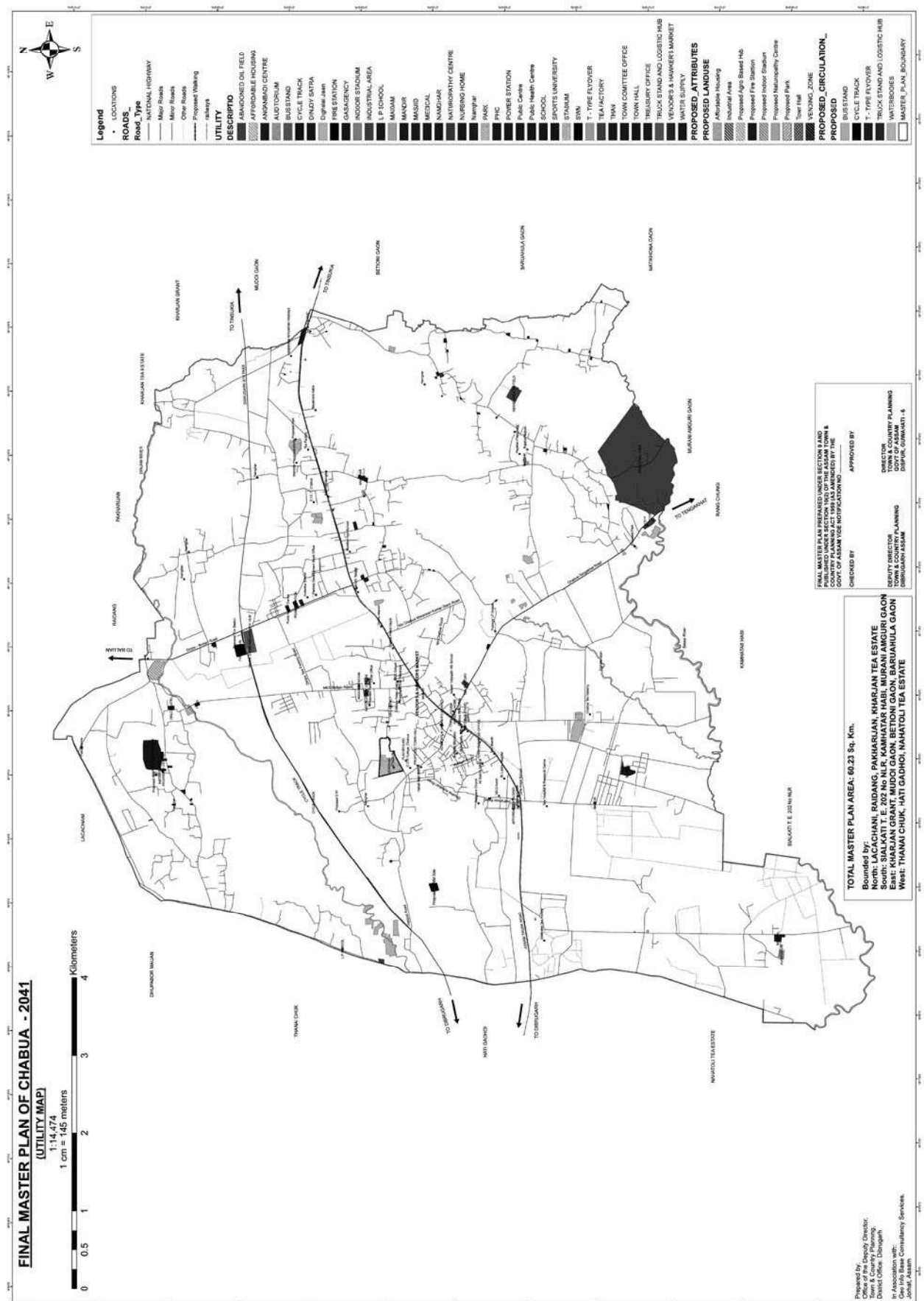
Sl. No.	Name of line Department/Agency/	Proposal	Action to be under taken towards implementing proposal
1	Chabua Municipal Board	Affordable Housing Scheme, Solid Waste Management, Construction of vendor & Hawker Market, Construction of Guest House, Parking, Town Hall, Park, FSTP & ETP, Burial Ground, Traffic signal points, Road Signage, Cremation & Burial Ground	Line department shall prepare concept paper / DPR whichever is applicable as per directive of the government for consideration of funding under 10% pool fund, NLCPR, NEC, State Finance Commission, CSR Fund of Pvt. Sector etc. in a phased manner during the Master Plan period i.e. up to 2041. A few selected schemes like housing colony can be considered under PPP mode.
2	Public Works Department & Chabua Municipal Board	Footpath & cycle Track, walking track Road signage in roads and in accident prone area, Street Furniture, Fly over, Indoor Stadium, Truck stand & Logistic Hub, Widening of Road, Welcome Gate, Muttock museum.	
3	APDCL & Chabua Municipal Board	Improvement of street lighting	
4	Public Administration and Chabua Municipal Board	Construction of Auditorium & Library	
5	Chabua Municipal Board and Town & Country Planning Assam	Preparation of drainage master plan and development of drainage system	
6	Chabua Municipal Board and Public Health Engineering Department	Improvement of sanitation	

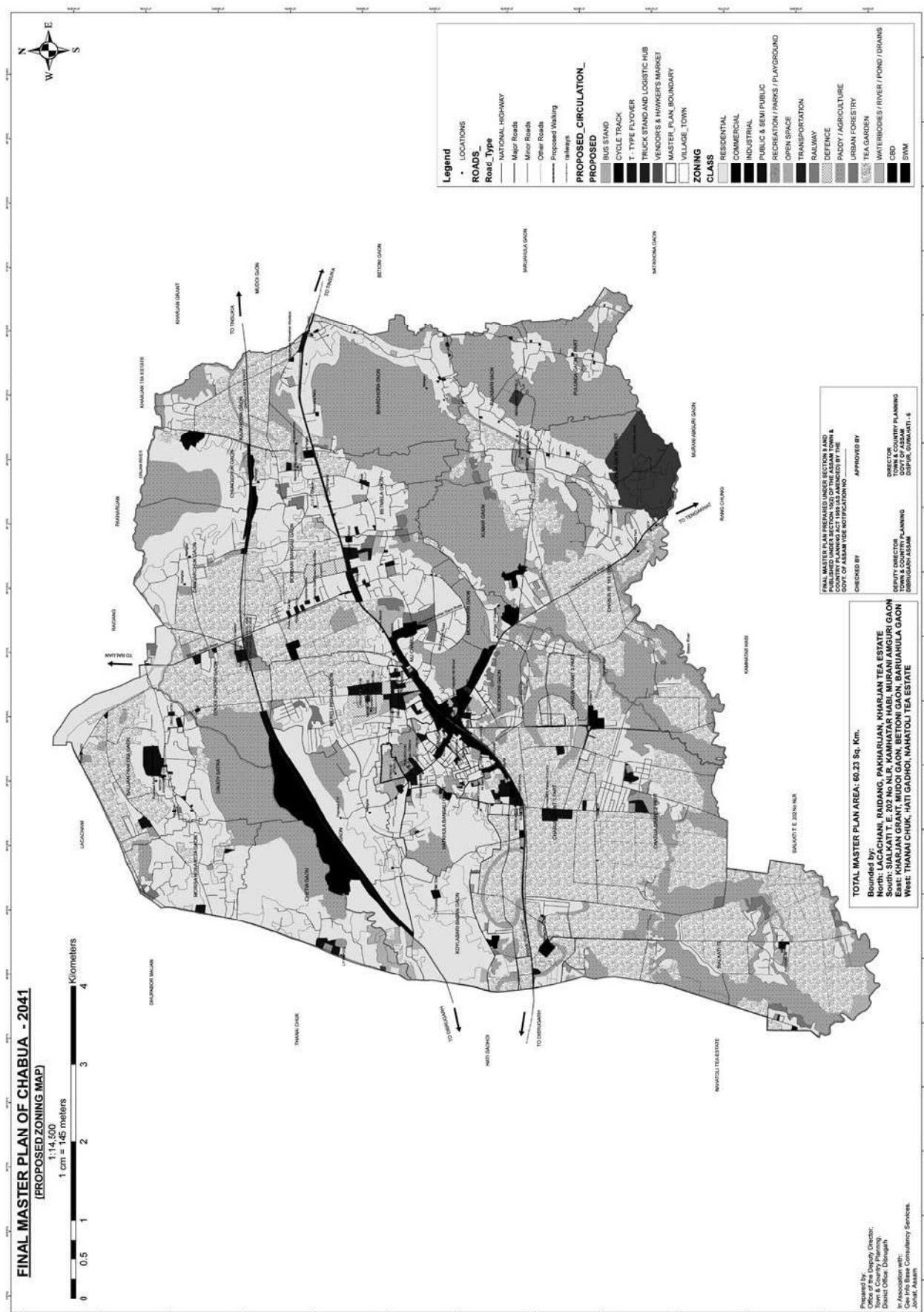
7	PHE Department & Assam Urban Water Supply and Sewerage Board	Water Supply Scheme	
8	Education Department, NGO and Private Agency	Education Facilities	
9	Health Department, NGO and Private Agency	Improvement of existing hospital and dispensary, Naturopathy centre.	
10	Sports & Youth Welfare Department & Sports Association	Development of playground and construction of stadium	
11	Social Forestry, Chabua Municipal Board, Public Administration and NGO	Protection & Conservation of environmentally friendly zone	
12	Social Forestry Department	Roadside Plantation & Urban Afforestation	
13	Agriculture Department	Urban Agriculture & Organic Farming, Agro based hub	
14	ASTC	Improvement of existing Bus stand	
15	Emergency & Fire service	Fire hydrant and Fire station	
16	Railway	T-type fly over with Railway Over Bridge	
17	Water Resource Department	Protection and Preservation of all natural channels flowing in the master plan area.	











ABBREVIATIONS

ANUABR	Assam Notified Urban Area Building Rules – 2014
AUW&SB	Assam Urban Water & Sewerage Board
A.R & T.C	Assam Railways & Trading Company
ATC	Air Traffic Control
AAF	Army Air Forces
ASTC	Assam State Transport Corporation
ASEB	Assam State Electricity Board
CMPA	Chabua Master Plan Area
CPHEEO	Central Public Health and Environmental Engineering Organization
CDMC	Chabua Disaster Management Cell
CBD	Central Business District
DDMA	District Disaster Management Authority
DPR	Detail Project Report
DW	Dwelling Unit
ECS	Equivalent Car Space
FDI	Foreign Domestic Investment
GNP	Gross National Product
GDP	Gross Domestic Product
MES	Military Engineer Services
MSW	Municipal Solid Waste
NH	National Highway
NMT	Non-Motorized Transport
NLCPR	Non-Lapsable Central Pool Resources
NEC	North Eastern Council
NGO	Non-Governmental Organization
PPP	Public Private Partnership
PMAY	Pradhan Mantri Awas Yojana
SOP	Standard Operational Procedure
SDO	Sub Divisional Officer
SC	Scheduled Caste
ST	Scheduled Tribe
SBM	Swachh Bharat Mission
SWM	Solid Waste Management
TE	Tea Estate
ULB	Urban Local Body
URDPFI	Urban and Regional Development Plans Formulation and Implementation
USAAF	United States Army Air Forces